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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CANTELMO, GREGG

ART UNIT PAPER NUMBER

1745

DATE MAILED: 10/02/2002

35

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/902,331

Applicant(s)

GRUENENFELDER ET AL.

Examiner

Gregg Cantelmo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-37, 44 and 45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35-37, 44 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 1997 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Appeal Brief

1. In view of the Appeal Brief filed on September 5, 2002, PROSECUTION IS HEREBY REOPENED. as set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Most notably a new objection to the drawings and 112 first paragraph new matter rejection have been presented.

Declaration

3. Applicant's declaration from Walter Haag has been considered but is not persuasive. The equation derived is still not held to be an accurate derivation given the teachings of the originally filed disclosure for the reasons set forth below. Note further that item 9 of the Declaration employs relationships such as equation (3) which is not provided in the amendment to the specification file October 2, 2000 (see page 2 of said

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amendment). There are more relationships set forth in the declaration than are taught in the specification amendment of note. Therefore, it is not readily understood how the relationship set forth in claim 44 is easily ascertained given the teachings of the original disclosure or the amendment filed October 2, 2000 when neither of these show the manipulations set forth in Applicants declaration Filed January 18, 2002.

Oath/Declaration

4. This application presents a claim for subject matter not originally claimed or embraced in the statement of the invention. The new matter is that which is discussed in detail in both the specification objection and 112 first paragraph rejection. Since this application is a divisional of U.S. patent No. 5,688,381, the disclosures of both applications must be identical else applicant is advised to pursue any continuing applications as a Continuation-in-Part as opposed to a Divisional. In doing so, a supplemental oath would be required. A supplemental oath or declaration is required under 37 CFR 1.67. The new oath or declaration must properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the relationship of $0.2 r_1 \leq d_0 \leq 0.54 r_1$ must be shown or the feature(s) canceled from the claim(s). No new

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matter should be entered. More particularly the drawings fail to show the relationship of $d_0 = d_{113} - a$ as shown in Fig. 1. Analysis of Fig. 1 does not show this relationship. First there is no clear disclosure of d_0 in the drawing. Second and more notably, examination of the figure, it appears that the upper surface of the target and lower limit of distance a are separated by a gap or structure between the two components. The specification does not clearly set forth that the lower limit of distance a is directly adjacent to the upper surface of the target and Fig. 1, relied upon for this equation appears to show that the two components are not directly adjacent each other. Therefore when determining the amount of taper the difference between d_{113} and a will give a value that is greater than d_0 since it will also include the gap between the upper target surface and a . For assistance in understanding the examiners position, an enlarged marked up copy of Fig. 1 was provided in a previous office action, incorporated herein.

A correction of the drawings to change these parameters will be held as introduction of new matter.

MC 9/30/02

Specification

6. The request for reconsideration filed October 2, 2001 and entered as per the RCE request is objected to under 35 U.S.C. 132 because it does not rectify the issue new matter introduced in by the amendment received February 10, 2000 and amended into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the various steps recited in the order indicated neither in this amendment nor of preferred values or distances employed therein.

In addition, by amending the specification and claims, it would appear that this application is no longer carved out of the parent case from which this application is a division of and hence would not be in accordance with 35 U.S.C. 120 and 121. The application may be more suitably filed as a CIP as opposed to its current filing as a divisional application of U.S. patent No. 5,688,381. In doing so applicant is advised to review MPEP section 201.06(c) directed to the specification and drawings wherein applicant is advised that a new oath/declaration along with a surcharge is required and the applicant should be redesignated as a CIP. Applicant is again advised to cancel the new matter in reply to this office action.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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8. Claims 35-37 and 44-45 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The equation $0.2 r_1 \leq d_0 \leq 0.54 r_1$ is not disclosed in the original disclosure of the instant application, and the disclosure therein fails to clearly lead one of ordinary skill in the art to arrive at this relationship. However there is no support for such a critical limitation. Applicant relies on support and disclosure provided in the amendment and not clearly and sequentially disclosed within the original application in the same manner.

9. Claims 35-37 and 44-45 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In light of submitted claim 44, this claim teaches of a relationship between the degree of taper and radius by manipulating numerous equations. The relationship defined as $0.2 r_1 \leq d_0 \leq 0.54 r_1$. However there is no support for such a critical limitation. Applicant relies on support and disclosure provided in the amendment and not clearly and sequentially disclosed within the original application in the same manner. At one point applicant recites that a preferred distance a is 30% d_{113} . The skilled artisan would not have been led to such a preferred distance without the specific teachings of the new matter presented in applicant's amendment to the specification.

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Since this claimed limitation is a critical feature of the instant invention, the disclosure as recited in the original application is not enabling for the claimed relationship. The examiner has interpreted such a limitation such that by teaching of the same target dimensions, the target will inherently generate the same taper at some point during sputter operation. Furthermore, it would not have been clear to one having ordinary skill in the art to employ a target having an amount of taper defined by the relationship: $0.2 r_1 \leq d_0 \leq 0.54 r_1$ since the original specification fails to provide any teaching toward deriving such a critical feature.

Furthermore Applicant indicates an equation wherein $d_0 = d_{113} - a$ as shown in Fig. 1. Analysis of Fig. 1 does not show this relationship. First there is no clear disclosure of d_0 in the drawing. Second and more notably, examination of the figure may not show this relationship. It appears that the upper surface of the target and lower limit of distance a are separated by a gap or structure between the two components. The specification does not clearly set forth that the lower limit of distance a is directly adjacent to the upper surface of the target and Fig. 1, relied upon for this equation appears to show that the two components are not directly adjacent each other. Therefore when determining the amount of taper the difference between d_{113} and a will give a value that is greater than d_0 since it will also include the gap between the upper target surface and a . For assistance in understanding the examiners position, an enlarged marked up copy of Fig. 1 was provided in the previous office action, incorporated herein.

Response to Arguments

10. Applicant's declaration and arguments filed September 5, 2002 have been fully considered but they are not persuasive. In particular: If new subject matter is added to the disclosure, whether it be in the abstract, the specification, or the drawings, the examiner should object to the introduction of new matter under 35 U.S.C. 132 or 251 as appropriate, and require applicant to cancel the new matter. If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. In re Rasmussen, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981). The examiner should still consider the subject matter added to the claim in making rejections based on prior art since the new matter rejection may be overcome by applicant.

In an instance in which the claims have not been amended, per se, but the specification has been amended to add new matter, a rejection of the claims under 35 U.S.C. 112, first paragraph should be made whenever any of the claim limitations are affected by the added material.

When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new matter" is involved. Applicant should therefore specifically point out the support for any amendments made to the disclosure (See MPEP 2163.07).

Applicant arguments and declaration state that the amendments to the specification as well as the relationship recited in independent claim 44 does not constitute new matter. The examiner is not persuaded.

In item 8 of the Declaration Applicant states that the range claimed in claim 44 is easily ascertained from the original disclosure. Item 9 of the same declaration provides a multi-step manipulation of various relationships, some of which are not set forth clearly in the original disclosure to arrive at the end relationship in claim 44 (discussed in items 3 and 11 above, incorporated herein. Given that there are differences in the manipulations of the declaration and those held to be new matter in the amendment to the specification filed October 18, 2000, the Examiner is not readily persuaded.

First, in order to arrive at such a relationship applicant required a lengthy amendment to the specification. The applicant appears to have taken numerous relationships disclosed throughout the specification and arbitrarily selected preferred values such as the preferred 30% d113 to arrive at the particular relationship recited in claim 44 and the amendment to the specification incorporating new matter. The equation (3) in the declaration is not found within the original disclosure and was a point of contention discussed in a previous personal interview. Given that equation (3) does not appear to have clear support from the original disclosure, all equations derived from this apparent unsupported equation, they too would not appear to be clearly taught. Applicant incorporates preferred combination of 8 relationships with preferred distances and parameters to arrive at the relationship $0.2 r_1 < d_0 < 0.54 r_1$. The skilled artisan would not have been led to such a conclusion based on the originally filed disclosure.

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The declaration provided would further appear to support this since it employs additional relationships such as equation (3) in this declaration which are not disclosed by the original disclosure.

Furthermore the relationship of $d_0 = d_{113} - a$ is not held to derive the target taper as applicant states and thus cannot be said to accurately derive the final equation of the claims relied upon for patentability. Applicant again is advised and invited if they wish to pursue such disclosure to be incorporated into the application to refile as a CIP as discussed above.

In addition, as a divisional application of U.S. patent No. 5, 688,381 such an amendment to both the specification and claims would not be considered proper since the disclosure of the parent 5,688,381 and that of this application would be substantially different in content. Thus the instant application would be more appropriately filed as a CIP and not a divisional as is it's current continuing status.

MC 9/30/02

Applicant argues in page 10 of the Appeal Brief that the relationship is reasonably described in the original disclosure including that in Fig. 1. Applicant further states that the relationships are “unambiguously” described in the Specification and “*substantially*” shown in Fig. 1 that support equation 3. While Applicant has provided numerous equations and manipulation of these equations to arrive at the relationship of claim 44, Applicant’s basis for support prior to the Appeal Brief was Fig. 1 and not a combination of Fig. 1 *and* the Specification description. Applicant is invited to submit evidence in the specification which clearly sets forth the basis for manipulating what is shown in Fig. 1 to arrive at the alleged supported relationship in equation 3.

Applicant asserts in page 12 of the Appeal Brief that the gap of Fig. 1 is irrelevant. The examiner does not agree since this gap factors into the equation that Applicant relies upon for derivation of the relationship set forth in the independent claim.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a

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general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

gc


September 30, 2002


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700